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**An Examination of the Effectiveness of
Partnering in Navy Construction Contracts**

by

Scott Lowe

A thesis submitted in partial fulfillment
of the requirements for the degree of

Master of Science in Civil Engineering

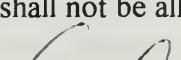
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University of Washington

Abstract

**An Examination of the Effectiveness of
Partnering in Navy Construction Contracts**

by Scott Lowe

Chairperson of the Supervisory Committee: Professor Jimmie Hinze
Department of Civil Engineering

This thesis presents an analysis of the effectiveness of partnering of construction contracts in the U. S. Naval Facilities Engineering Command. Partnering is a contract administration tool designed to foster open communications between contracting parties and avoid the traditional adversarial relationships that have become the standard over the past years. Implementation of partnering is done on a project by project basis since acquisition regulations do not allow for long term relationships between private contractors and the federal government. Successes reported in partnering have all been subjective and based on individual project performance. This thesis compares project performance of partnered and non-partnered projects. Criteria of comparison include cost growth, incidence of claims, response times for various contract requirements, value engineering savings and end of project contractual issues.

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CHAPTER I: INTRODUCTION

Construction in the United States is a multi-billion dollar industry. Most of the construction work is performed under contract. The most common form of contract is where the owner contracts with a single prime or general contractor. Owners typically award their contracts on the basis of competitive bids received in order to achieve the lowest cost objective, while contractors strive to be the low bidder, with the objective of maximizing profits. This results in the main participants in a common project, the owner and the contractor, having different and many times opposing objectives. This situation encourages, breeds, and leads to conflicts and disputes. The cost of these disputes has steadily risen through the 1970's and 1980's. It has reached the point where the costs involved in resolving the conflicts through litigation, mediation, mini-trials, arbitration, or other methods are so high that neither the contractor or the owner achieve their objective. This has led to a genuine attempt to alter the way construction projects are awarded and structured. The new contracting approach that has boasted considerable success in recent years to changing the adversarial climate on construction projects is partnering.

Typically an owner does not have the expertise nor ability to design and construct a needed facility. Because of this the owner will contract with a design firm to produce a set of documents that can be used to construct the needed facility. The owner then takes these documents and contracts with a separate firm to construct the new facility. The

problem is that, on one hand, the design firm does not produce a perfect set of plans and specifications rather, the design firm must only produce to a standard of care that is consistent with the professional skill and competency of the design industry. On the other hand, the contract with the builder assumes that the finished facility will be perfectly free of all defects. This is not realistic as there is limited time for the contractor to completely digest the entire contract documents and coordinate all suppliers, subcontractors, and labor to accomplish the task prior to bidding the job. In many cases this expectation of perfect construction is also expected at the original bid price; therefore, disputes arise and the contracting parties resort to litigation (Katz, 1993).

Cumbersome contracts have been the source of the ever increasing adversarial contracting relationships that have developed over the course of the last twenty to thirty years. Public contracts are written so as to look after the immediate financial interests of the owner and completely overlook the risks taken by the contractor. In the late seventies it was recommended that the civil engineering profession develop a standard for construction contracting so that the many areas of inequity and injustice inherent in the contracts be eliminated. The intention was to minimize legal intervention into the process of construction. This would, in turn, help to eliminate the steadily rising costs to settle disputes and claims (Durkee, 1977).

Partnering was developed to change the manner of resolving problems that arise on a construction project. Currently, changes in the original plans, specifications, or

contract are seen as sources of added costs to either the contractor, owner, or both.

Differing site conditions, delays, and change orders are often viewed as opportunities for contractors to make up for lost profit from an improper bid or losses in other parts of the project or a chance for the owner to force the contractor into making concessions beneficial to the owner. This is clearly a breeding ground for disputes. When disputes cannot be resolved effectively, the owner and the contractor may end up losing.

Partnering attempts to change the lose-lose situation into a win-win situation. Partnering attempts to resolve disputes early and at the lowest levels of project management. The partnering process typically begins as soon as the contracting parties have been identified for a project. Partnering can also be implemented after problems and disputes have arisen in an attempt to change the course of the project. Fundamental to partnering is changing the view of the parties involved. When the partnering concept is embraced, parties will seek to help the other to achieve their respective goals: the owner a quality, low cost project and the contractor a quality, profitable project. Under partnering, a problem for one party becomes a problem for both parties. Both parties use their resources and experience to solve the problem and keep the project moving towards a successful completion. The personnel involved in solving the problem or dispute are the ones working on-site and most familiar with the project. This is in sharp contrast to the traditional approach in which outside people such as arbitrators, mediators, lawyers, and consultants are brought in to solve the problem (Agle, 1991).

CHAPTER II: LITERATURE REVIEW

Partnering is a relatively new form of contract administration in public works contracting, as such, little formal research has been conducted on its effectiveness as a contract administration tool. Parallel to this study, Captain Jeff Eckstein, U. S. Army (an MSCE candidate, University of Washington) was conducting similar research with the Army Corps of Engineers. With the parallel research with two different agencies of the Federal Government, it was decided to jointly conduct the literature review in order to more effectively research the subject. The material in this chapter represents the combined effort of the author and Jeff Eckstein.

Partnering Definition

According to the Associated General Contractors (AGC), the use of partnering is more than just a change in contract administration, rather it is the use of good common sense. It consists of getting along with people and doing the work at hand in an "honorable, dignified, efficient, and profitable way" (Robins, 1992) and, "it dispels the notion that for one side to win, the other must lose" (Agle, 1991). While there are several definitions of partnering, they all have the same focus. They stress changing the traditional adversarial owner-contractor relationship to one of cooperation and achievement of

mutual benefits. The Construction Industry Institute (CII) Task Force on Partnering defines partnering as:

"a commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based upon trust, dedication to common goals, and an understanding of each other's individual expectations and values" (Katz, 1993).

The United States Army Corps of Engineers defines partnering as:

"the creation of an owner-contractor relationship that promotes achievement of mutually beneficial goals. It involves an agreement in principle to share the risks involved in completing the project, and to establish and promote a nurturing partnership environment. Partnering is not a contractual agreement, nor does it create any legally enforceable rights or duties. Rather, partnering seeks to create a new cooperative attitude in completing government contracts" (Edelman, 1991).

The U. S. Naval Facilities Engineering Command (NAVFAC) defines partnering as:

"a common sense communication process. It establishes effective working relationships between the partners and makes their jobs easier. Through commitment, trust, communications and shared objectives, partnering creates an attitude of teamwork and an atmosphere for effective problem solving. This results in a win-win situation for all members of the partnerships" (Buffington, 1992).

The three definitions presented above emphasize that partnering is a communications tool that requires that all members of the partnerships stay in continual contact with each other

and that all matters of the contract be discussed as issues come up and that issues be resolved at the earliest time and at the lowest possible level.

Along with the definition that states what partnering is, there must also be a realization of what it is not. Partnering is not a quick fix to traditional adversarial relationships. Attitude changes take place as a result of cooperation and trust, and may take a considerable time. Partnering will attempt to change the focus of both contracting parties from traditional adversarial attitudes to attitudes of concern for the successful completion of the project.

Partnering also is not a guarantee of profit for the contractor. In firm fixed price contracting there is always the potential for a contractor to submit a bid that was estimated improperly. All risks that are assigned to the contracting parties in the contract remain with the respective parties throughout the contract duration. The realization of increased profits come from the ability of the contracting parties to resolve problems through cooperation and communication, not in the reallocation of risk.

Partnering will not guarantee that the contract documents are perfect or that the personnel assigned to the contract are experts in the type of construction being accomplished. It will help to point out the weakness that must be overcome through mutual trust and reliability.

Partnering is not a substitute for the terms and conditions of the contract. The "partnering charter" is strictly an informal agreement describing the relationship between

the contracting parties. All contractual activities are conducted within the terms of the contract and within the law. The obligations of the written contract are still binding on each of the contracting parties. Personal favors and gratuities are forbidden whether or not partnering is utilized.

Partnering is a change in cultural attitudes. If it is not endorsed by all parties in a firm from the Chief Executive Officer down to the lowest position within the company or from the Contracting Officer down to the Government Field Representative then its effectiveness as a contracting tool will be reduced. Partnering will not survive without the enthusiastic support of top management (Anderson, 1992).

Finally, partnering is not a replacement for all litigation. Litigation is not always counterproductive. It does serve the purpose of establishing legal precedents and law. The precedents set the foundation for settlements of disputed issues in the present case as well as future issues (Engineering News Record, February 1991). The problem with litigation is that too often it results in a large cost to settle a relatively small issue of disputed costs.

Partnering places all players in the construction process on one team and requires all members to actively fulfill their roles on the team. Each member of the team has unique skills, abilities, and shortcomings. To be an effective team, every member must know the capabilities of the other players. The end result is a team that accomplishes its project with minimal delay or disputes. This approach expects owners and contractors to

assist each other, provide back up support, and relay information. In problem areas, solutions are sought and blame is not pinpointed. For the team to work, top management of all parties involved must be committed. Top management must give the players the responsibility and the authority to make decisions at the lowest levels of the project. On-site personnel should be the ones solving disputes and making decisions. Top management must insure that this happens and make sure that everyone on their part of the team abides by the rules. Management must replace the players who can not fit into the team.

Keys To Partnering

There are several keys that make a successful partnering relationship. Different organizations have defined different keys, usually just expanding on a common list. Three keys that most groups incorporate in their lists are trust, commitment, and a shared vision. In trust, all parties are getting back to the older or traditional values when agreements were commonly made on a person's word or a handshake. Contracts and lawyers are not needed to insure everybody does what they say. The other party believes what another person tells them. They do not doubt or question their word. This trust must be mutual. Another key is commitment. This includes the commitment from top management, which was already discussed, and from the players. Everybody on the team must be committed

to the partnership. If one person just goes through the motions and talks about action, the partnering effort will fail. Every member must be committed and show it. The third key is a shared vision where all players know and understand the final product as well as the objectives of the other players. Using a shared vision, everybody can analyze their actions against the final product and the partnership's objectives. Personnel start protecting the project and each other's objectives. All of the player objectives are developed and resolved during the partnering process. The shared vision insures everybody is on the same "sheet of music."

There are arguments that oppose partnering. It has been suggested by some that partnering is just a new word for the way business in the construction industry was conducted decades ago. AGC President Marvin M. Black has been quoted as stating, "It's getting back to the old fashioned way of doing business with a handshake and taking responsibility for what you do. Partnering formalizes that agreement." Time has eroded the meaning of a hand-shake and the word of honor between two reasonable people (Schriener 1991). Time has also implemented the need to use the courts to settle all differences no matter how small or insignificant the problem might be. Arguments can be made that partnering will only work in situations where the contracting parties want it to work, and if one of the contracting parties has unreasonable expectations then no amount of partnering will avoid the potential claims and litigation. Where partnering does not

work, provisions for the creation of a disputes review board might be included to compliment the process (Shanley, 1992).

Implementation

Implementing partnering is not difficult nor time consuming, but it does require a paradigm shift in executing a contract. The four steps in executing partnering are:

- Mutual agreement to use partnering
- Selecting a partnering champion
- Creating a charter
- Executing the project and evaluation

The first step is for all parties to agree to partner the project. This must be a free decision. Any coercion at this point "kills" the partnering process. The partnering relationship should be made as soon as possible in developing the project. In the private sector, this can begin when the project is still in the design stage. For public works, partnering begins when the project is advertised for bid and is formally established once the contract is awarded. In this step, top managers representing all parties come to an understanding about what they want out of the project and become committed to the partnership. Partnering has also been implemented successfully in the middle of an ongoing construction project (Brown 1993).

The second step is selecting a champion for the partnering process from all parties. These champions are representatives of management and will be on-site for the duration of the project. They are responsible for the daily implementation of the partnering effort. They are concerned with keeping the new partnering culture intact and preventing adversarial relationships from developing.

The third step consists of creating a charter. This is accomplished during a workshop. This workshop is attended by the major players on the project site. All players discuss their expectations for the project and identify concerns about dealing with the respective organizations. Everybody participates in exercises involving communication, problem solving, and group interaction. After this introductory portion is completed, the workshop focuses on the construction project. All suspected problems concerning execution of the project are identified and discussed at this point. A clear understanding of the fears and concerns of the contracting parties aides in building the mutual trust and developing a shared vision. The group then develops a partnering charter which includes the mission statement, project objectives, implementation plan, and conflict resolution strategy. In the mission statement, the parties declare a mutual commitment to each other and to a quality project. The project objectives outline specific tasks that must be met or completed for all parties to have a successful project. The implementation plan then quantifies how and when the objectives are to be met. This plan provides a method to

evaluate the partnering process throughout the project. Finally, the conflict resolution strategy states how problems are identified and how to solve them.

The partnering workshop can last from one to five days. It is ideally held on a neutral site and usually conducted by a professional facilitator. The facilitator provides expertise in teamwork development and serves to keep the process moving towards a completed charter. This workshop can be altered to meet the requirements of the players and the project.

The fourth step is executing the project under the partnering concept. The important part here is to continually focus on the goals of the partnership and review how the partnership is progressing. A continuous flow of information is critical. All parties must communicate problems as they develop so the team can solve them. On long duration projects, a periodic review of the partnering charter or participation in second or follow up workshops may be beneficial.

Partnering In Public Works

In private construction, partnering seeks to be a long term relationship. The owner and the contractor learn from their experiences on previous projects and make improvements on succeeding projects. The contractor interacts with the owner throughout the project from developing the concept to completing the job.

In public works, the low bidder gets the project. Here, a partnering arrangement can only be developed after awarding the contract and the partnering process terminates with the completion of the job. These circumstances make it critical to promptly begin the partnering process once the job is awarded. Participation in the partnership must be voluntary. Making partnering a contract specification violates the basic concept of partnering. In many public projects, an invitation to use partnering is included in the "Notice to Bidders". This may be followed up with a small presentation about partnering to all the contractors present at the bid opening or the pre-bid conference. The costs of partnering are shared by all parties involved. A typical partnering invitation in the "Notice to Bidders" is as follows:

"In order to accomplish this contract most effectively, a cohesive partnership between the Government and the contractor (including subcontractors) will be developed. This partnership will strive to draw on the strengths of each organization in an effort to achieve a quality product done right the first time, within budget and on schedule. This partnership will be achieved through a three (3) day workshop at a mutually agreed upon location, not adjacent to the job site. The workshop will be held during normal working hours within 90 days of the contract award.

"The contractors' key personnel will attend the 'partnering' workshop. Contractor and subcontractor key personnel are the Project Manager, Assistant Project Manager, Superintendent, CQC Representative, Submittal Assistant and specialized supplemental inspection personnel.

"The contractor and Government shall equally share in the incurred costs of the workshop. These costs include the facilitator's fees, travel and per diem expenses, and the cost for a meeting room for approximately 20 people. Travel and per diem costs for the prime contractor and key subcontractor personnel shall be at the contractor's expense. The Government's expenses shall include the Government's representatives and related travel and per diem. The total cost for

this partnering workshop typically range (sic) from \$5,000 to \$7,000"
(WESTDIVNAVFAC Memo, 1992).

The successes of partnering have resulted in many public agencies implementing partnering arrangements on many of their construction projects. NAVFAC, for example, has recently introduced a policy decision stating that partnering will be invited on all projects of \$500,000 or more in value. This is a change from its previous policy of considering implementing partnering on projects valued in excess of two million dollars. NAVFAC's participation in partnering has steadily increased from two partnered projects in 1989 to well over sixty projects in 1993 (NAVFAC, 1993). Another public agency that converted to endorsing partnering agreements is the California Department of Transportation (CALTRANS) which recently stated that all future contracts will have an invitation to partner (Civil Engineer, August 1993). In addition to CALTRANS mentioned above, other States have implemented partnering within their respective transportation departments. Washington State Department of Transportation (WSDOT) has claimed significant improvements through partnering in the administration of construction contracts due to improved feelings of trust and respect, improved communications and increased efficiency (Anderson, 1992).

The Arizona Department of Transportation (ADOT) instituted the partnering concept into their construction projects in 1991 and have had resounding successes. When U. S. Army Colonel Charles Cowan retired from the Corps of Engineers, he went to

work for ADOT and brought with him the partnering concept that is now a major part of ADOT's highway construction program. ADOT's first partnering project was a \$6.2 million project on Interstate 17 in north Phoenix. The project was expected to have a duration of 17 months; however, the project was completed in only seven months. Partnering was credited with the schedule savings, as well as \$60,000 in construction savings and \$140,000 in value engineering savings. ADOT has now instituted partnering as the standard method of doing business and views the partnership as a team effort to accomplish the project (Flynn, 1992).

The Connecticut Department of Transportation (ConnDOT) has also recently converted to partnering in its administration of construction projects. Impressed with the results of the Corps of Engineers efforts and Arizona Department of Transportation, ConnDOT is attempting to use partnering in its reconstruction of bridges along State Route 8 in Connecticut (Gruhn, 1993).

The U. S. Army Corps of Engineers, a pioneer in the partnering concept for public works construction, has recently expanded its partnering efforts to environmental cleanup projects. The Corps of Engineers has signed agreements to implement partnering on all of its clean-up projects including Superfund projects and base closures. One such agreement was signed with The Hazardous Waste Coalition, an association of environmental contractors. The Coalition hopes to include partnering in its contracts with the Navy and

the Air Force (Engineering News Record, April 1993). It is obvious that partnering is quickly gaining widespread acceptance.

Results Of Partnering

There are numerous benefits to partnering a project. Most of the results of partnering are difficult to quantify but they are generally perceived by the partners as being beneficial. One quantified benefit is the decrease in litigation and the number of unresolved conflicts at project completion. The open communications and teamwork approach solves problems as they develop. The problems are solved by on-site personnel who can make informed decisions. This has eliminated escalating the problem to higher management and evolving the problem into a "us against them" approach. A CII survey reported partnering reduced owner project costs by eight percent, shortened schedules by seven percent, and improved contractor profitability by ten percent (Hancher, et al, 1991). Another benefit of partnering is a higher quality project since all personnel on the job are focused on the project and not on blaming each other for difficulties that arise. The personnel working on partnering jobs are happier and their job satisfaction has improved. As a result, safety and overall quality of construction improved.

The costs involved in partnering are minimal. The only direct cost is the cost of the workshop. A workshop facility must be rented and a professional facilitator must be

paid. This direct cost of the facilitated workshop is usually around \$5,000 to \$7,000 and is split between the partners. Other costs include the time of all the participants at the workshops and these costs are the responsibility of the individual contracting parties for their own personnel. Most workshop participants are managers who lose two to three consecutive days from other productive company work. Another cost is the administrative time the champion spends maintaining and evaluating the partnership. This new duty takes away time from other project-related duties but contributes to project completion. Most partnering costs pertain to management productivity and are included in project overhead (Mobile 1990).

This new method of contract administration has been widely embraced as the style for owner-contractor relationships in the future. The Associated General Contractors (AGC) now gives annual awards for Partnering Excellence. The award is the Marvin M. Black Excellence in Partnering Award and is named for AGC's 1991 president. The first awards were presented in 1993 to eight general contractors whose projects ranged in size from one million to 54 million dollars. The eight projects are summarized in Table 1.

Table I. 1993 AGC Marvin M. Black Excellence in Partnering Award Winners.

Project	General Contractor	Owner	Project Size
Sheplars Western Wear Las Vegas, NV	Jaynes Corporation Albuquerque, NM	Kabuto International	\$1 million
French Creek Pumping Station, Snohomish, WA	Thompson - McDougall, AJV Portland, OR	Soil Conservation Service	\$6.2 million
Secure Assembly and Test Facility San Diego, CA	Kvaas Construction Co., Inc. San Diego, CA	U. S. Navy	\$7.5 million
School of the Americas, Fort Benning, GA	Connor Bros. Construction Co., Inc. Auburn, AL	U. S. Army	\$24.8 million
F117A Stealth Fighter Maintenance Docks/Hangars Holloman AFB, NM	Hensel Phelps Construction Co. Austin, TX	U. S. Air Force	\$54.1 million
Kitt Peak Observatory Road Pima County, AZ	Granite Construction Company Watsonville, CA	Arizona Department of Transportation	\$1.1 million
John Deere Family Health Care Clinic Moline, IL	Estes Company Davenport, IA	John Deere Inc.	\$3.1 million
West Mixmaster Polk County, IA	Cedar Valley Corporation Waterloo, IA	Iowa Department of Transportation	\$3.7 million

Source: (Constructor, November 1992)

All of the projects were described by the contracting parties as resounding successes. The Sheplars Western Wear project was completed in only thirty-five days whereas 120 days was the norm for this size and type of project. The owner, architect and contractor worked in close harmony to meet very tight schedule constraints and enhanced the use of Value Engineering proposals to avoid potential problems. The contractor

stated that there were at least thirty-five separate issues that could have become claims but due to the close partnering relationship, all thirty-five issues were easily resolved.

In another tightly-scheduled project, once again, claims were averted through the use of cooperative communications in the French Creek Pumping Station project. The dairy farms surrounding Snohomish, Washington have suffered many losses over the years to flooding problems, but thanks to a partnering approach in the construction contract the floods were averted and the project was completed four months early and prior to the rainy season of 1992. The use of value engineering concepts enabled the contractor to propose a unique cofferdam design that was evaluated and accepted in record time and ultimately contributed to the early and successful completion of the project.

The Secure Assembly and Test Facility was a classified construction project in San Diego for the U. S. Navy. All personnel, and visitors, were under constant reminder of the partnership that existed between the contractor and the Navy. A banner was a permanent fixture at the entrance to the job site that read, "A Successful U. S. Navy/Contractor PARTNERING Project, Be proud of your work, Be proud of your country". The focus on open lines of communication was apparent at all times. This successful project resulted in no lost time accidents, completion on time and under budget. Again, value engineering proposals were a common denominator to the success of this critical project.

The Army had a potential for many claims and safety mishaps on the School of Americas project at Fort Benning, Georgia. The project involved twenty-six buildings requiring different expertise. The buildings required renovations to modern construction standards or restoration to 1930 standards of appearance. Many of the buildings were multistory structures. Other potential problem areas were evident as well, such as a mile of deep trenching for sewer lines. All of these problem areas were successfully reduced to safe, on time work with only two minor reportable accidents. Value engineering proposals by the contractor were instrumental in the ultimate success of the project.

The Kitt Peak Observatory Road project was a renovation on a mountainous road on the Tohono O'Odham Indian Nation. Previous attempts to repair the 5,300 - foot elevation section of roadway had failed and since there was no other access to the observatory, it was decided that the project had to be completed without the usual adversarial conflicts of traditional contracting. Partnering is credited for the on budget and under schedule completion of the project. Credit for the savings of nearly \$50,000 to the project is also given to partnering in the value engineering provisions of the contract.

In an example of successful private contract partnering, the John Deere Family Clinic project was completed under budget, on schedule and resulted in only one reportable injury. The owner, architect and contractor worked together early in the project to select all suppliers and subcontractors. The prime contractor worked closely with the owner at every stage of construction to insure any punchlist type discrepancies

were corrected during construction and not at the end of the project. This zero punchlist strategy enabled the contractor to successfully complete the project without any rework.

The West Mixmaster project was a partnering effort with the typical use of partnering workshops and the drawing up of a charter spelling out the usual goals of effective communications and goals for completion; however, the partnering charter also included time scales for the resolution of conflicts and disputes. This helped each contracting party to focus on where each conflict was going and it kept the momentum of the construction effort moving forward.

It is apparent that the concept of partnering is enthusiastically endorsed by the AGC. In a survey conducted in September 1992 the AGC found that all of their member chapters employed training for the contractors within the local chapter memberships to adopt partnering strategies. Chapters are now starting to develop Quality in Construction Committees and extensive use of partnering literature and partnering consultants are used to educate contractors and owners of this change in contract administration (Constructor, November 1992).

Another successful partnered project was evidenced by the successful completion of the \$20 million propulsion training facility at the Naval Weapons Station, Charleston, South Carolina. In this key project, the U. S. Navy was concerned with the successful completion due to ever tightening Military Construction (MILCON) money and the contractor was interested in completing a "showcase" project to add an impressive facility

to its resume of successful projects. Both contracting parties were able to communicate their respective goals in the partnering atmosphere, and with a shared commitment to the completion of the project, they were able to focus on the path to a successful completion (Cooper, 1992).

Current Issues

One current issue on partnering projects is the blurred responsibility on the project. As all partners begin sharing the risks and participate in solving problems, the old clear lines of responsibility between owner, engineer, and contractor are not so clear. Any liability or costs may be incurred by all parties as a group effort in construction may lead to group mistakes. On private projects, this liability and its associated costs can be discussed and negotiated. An owner may be willing to accept part of the cost in a partnership where as before, the owner would insist the contractor was fully responsible. In public works, this type of negotiation is illegal. The partners must look to the contract to determine responsibility and liability. Assigning the responsibility or pin-pointing the blame can impede the partnering effort.

On public works projects, an issue of concern relates to how to avoid the old adversarial relationships. In competitive bids, the contractor and subcontractors have very little margin for profit. This severely impacts their ability to make monetary concessions

and still have a successful job. If a project develops too many problems at once, the bottom line may override the partnering agreement. If the partners view the partnering effort as compromising their chances for a profit, the partners will probably start working against each other.

Another potential problem arises when partnering is not fully accepted. As stressed earlier, partnering is a change in attitude about contracting and it is intended to be ingrained in company and agency policy. There are skeptics, and there are failures of implementation of this process. Some of the leery have stated that partnering works well at the start of a project but will fall into the normal routine once the partnering "honeymoon" is over (Cosinuke, December 1993). Other concerns are that owners might feel that partnering is the ultimate answer to poor plans and specifications, variations in estimated quantities and other risks over which the contractor has no control. Minimizing the impact of those problems is the intent of partnering.

Guidelines for successful partnering have been developed by several organizations so that the successes enjoyed by many contractor/owner partnerships can be universally applied. Joint guidelines issued by the AGC, American Subcontractors Association (ASA) and the Associated Specialty Contractors (ASC) offer advice on the development of the partnering strategy (Constructor, November 1992).

Partnering is gaining so much momentum that the "old" way of doing business is becoming the exception rather than the norm. The American Arbitration Association

(AAA) is now endorsing the partnering way of doing business. In Northern California, the AAA has created a "partnering facilitation team" to begin its dispute prevention program in harmony with its traditional dispute resolution work. The facilitation team comes into projects and helps to begin the partnering process. The added benefit is the AAA's experience in dispute resolution in the case of a possible dispute that the new lines of communication cannot solve (Civil Engineer, April 1994).

Other organizations have also added their expertise in the partnering facilitation. The Shilstone Companies of Dallas, Texas have recently developed a "concrete construction facilitator program." Portland Cement Concrete (PCC) experts are hired to help the newly formed partnerships develop the most efficient means of accomplishing the PCC portions of the contract. Under the program the contracting parties agree to the selection of a PCC facilitator and joins into a limited partnership to review the contract, evaluate local resources and develop technical alternatives that will result in the most efficient PCC placement. This addition to the partnering arrangement is designed to avoid constructibility problems in certain complex projects. Shilstone's objective is to work within the bid price, but try to anticipate where all of the potential for disputes/claims might arise in the concrete portion of the specifications and plans (Civil Engineer, April 1994).

CHAPTER III: RESEARCH METHODOLOGY

It was decided that a study on the effectiveness of partnering in the administration of construction contracts must include a suitable number of contracts for analysis. Since it was desirable to obtain contract data from as many sources as possible, the data collection process was ideally suited for a survey format. For consistency of results the study was concentrated on the administration of construction contracts within the U. S. Naval Facilities Engineering Command (NAVFAC).

Naval Facilities Engineering Command

NAVFAC has the mission of shore station support to the Navy and Marine Corps. This mission includes many aspects of facilities management, from conceptualizing the construction project, studying the requirements, obtaining funds, designing the project, advertising for construction, through administering the construction project and the maintenance of the completed facility. Many of these aspects of facility management are carried out through the use of contracts. Construction contracts are administered through a local Resident Officer In Charge of Construction (ROICC) office aboard or near the Naval installation that is receiving the construction project.

The ROICC has the responsibility to act in the name of the Navy in all aspects of day to day contract administration. These duties include processing submittals for approval or review by the designer, answering requests for information (RFI) from the contractor, negotiating and processing contract modifications and change orders, evaluating and negotiating claims and other contract management duties. The ROICC is the contractor's contact with the Navy and is the Navy's sole representative to the contractor. Whenever Navy projects are partnered, the ROICC will play a vital role. The partnering process can only succeed if the mutual respect and cooperation is built on the relationship between the ROICC and the contractor.

Survey Development

The primary objective of the research was to assess the relative effectiveness of partnered projects when compared to projects that were not partnered. Of primary importance in the development of the survey instrument was the identification of a variety of measures by which the "effectiveness" of contract administration could be assessed. Additionally, it was decided that, as much as possible, the measure should be objective in nature. The survey was developed through an examination of the available literature on contract administration and reports on partnering. The theme of most of the articles on partnering emphasized the issue of timely performance. Timely performance is not just

focused on the completion of the contract, rather it is the performance of the day to day contract administration duties. Open communication between the contractor and owner can be measured in terms of the time in which responses are made to inquiries and submittals coming from the contractor. This measure is one of responsiveness from the contractor's perspective as the contractor bears the monetary risk of timely performance.

The final survey form contained several criteria for providing data on effectiveness of performance. Furthermore, this information was sought on a project by project basis. These general categories applied to the construction climate whether the project was partnered or not partnered. Information was sought on the following:

- Contract Administration (Project Status),
- Value Engineering,
- Claims/Change Orders,
- Safety,
- Final Completion,
- Perceptions of Partnering.

Since it was essential to obtain information about partnered and non-partnered construction projects the survey asked respondents to provide information about whether the job was formally partnered. For each project, it asked about the participation of the ROICC, Navy Design Manager, Navy Project Manager, Customer, General Contractor, Subcontractors, Design Firm and Sub-subcontractors in the partnering process.

Information on the cost of the partnering facilitator was also requested. Respondents were also requested to describe their general reaction to the initial partnering session.

A Contract Administration section asked about day to day processes of contract administration. Information sought included the current work in place, contract award price, current contract value, and the response times for submittals, RFIs, and variances. This information was sought to obtain information that could be used to describe projects in terms of scope growth and project complexity.

Value engineering is ideally suited for the partnering process because it encourages the contracting parties to work together in developing and evaluating alternate means of accomplishing selected construction tasks. The survey asked if any value engineering change proposals (VECP) were submitted by the contractor, how many were accepted, the savings due to VECPs, and the average response time to decide on the VECP. The survey also asked for the reasons for rejecting VECPs and a description of the most significant VECP accepted.

One of the goals of partnering is to reduce the incidence of disputes and, ultimately, to eliminate litigation. In order to accomplish this the contract must be administered in such a way as to quickly resolve all matters of money. If the Navy submits a request for proposal for extra work or issues a change order, it should be negotiated and conformed into a contract modification in a timely manner so as to not cause later impacts that will disrupt the contractor's schedule, or work-force. For this criterion the survey

asked about the current backlog of pending changes and the reasons for their status as pending. The average time required to agree on the terms for a modification (from the initiation date of the request for proposal to contracting officer's signature) was also asked.

Since claims usually result from the contractor accomplishing work that is perceived as being extra, the survey asked about the number of requests for equitable adjustments, the time to respond and whether any were elevated to claim status. If there were any claims under a particular project, the survey asked for information on how the claim was settled: Contracting Officer, disputes resolution board, Board of Contract Appeals or a description of the process used.

The literature search revealed quite a few authors noting that safety performance was enhanced as a result of the partnering process. To examine this postulation, the survey asked for information on safety mishaps and lost time accidents. The survey continued by asking the reasons for the accidents, whether they were due to worker error, lack of appropriate safeguards, time constraints, or a description of some other reason for the accident.

The punchlist at the end of a job may give an insight as to the overall efficiency of the job. Information was requested on the size of the punchlist and the estimated time to complete the punchlist. Information was also sought on the estimated time between substantial completion and receipt of the contractor's final release.

A section of the survey on the perceptions of partnering asked for the contract administrator's opinions as to the success of the project and whether it was attributable to partnering. The survey also asked whether the partnering process changed the Navy's methods of contract administration on all jobs, partnered or not.

This survey was intended to be relatively comprehensive so that a thorough analysis of the effects of partnering would be represented. In order to test the survey form, a pilot study was conducted with ROICC offices within the State of Washington so that quick responses could be anticipated which would facilitate the early identification of deficiencies in the form. On 8 May 1994 a pilot survey was sent to Puget Sound Naval Shipyard, Submarine Base Bangor, Naval Air Station Whidbey Island and Naval Station Everett. By 15 May 1994, each of these offices returned surveys and the form was appropriately revised and mailed to ROICC offices throughout the United States, Puerto Rico, and Guam.

NAVFAC has headquarters in Alexandria, Virginia and divided into Engineering Field Divisions (EFD) and Engineering Field Activities (EFA) which have jurisdiction over geographic regions of the country. The ROICC offices that were selected for participation were a sample from each geographic region. Initially, every other listing or alternating listings were used to identify ROICC offices for inclusion in the study (NAVFAC P-1, 1993). It was also deemed important that every geographic region be adequately represented in the study. Consequently, for some regions with few ROICC offices,

additional listings were selected. A total of fifty-one surveys were mailed on 20 May 1994 asking for a response no later than 15 June 1994. A sample of the introductory letter and survey are contained in Appendix A. The surveys were mailed with the assurance that all responses were to be kept in the strictest confidence and that all responses would only be presented in data form so that anonymity would be maintained. It was hoped that anonymity would ensure a large response and alleviate the possible tendency of bias on the part of the respondent.

A total of twenty-seven ROICC offices responded to the survey. This included the four responses to the pilot study. The responses to these surveys reflects a forty-nine percent response rate. The responses reflect information on sixty-one projects; respondents provided information on zero to eleven projects. Three of the ROICC offices have done no formal partnering to date and two of those three provided information on a non-partnered project for inclusion in the study.

CHAPTER IV: ANALYSIS OF DATA

The data collected from the various ROICC offices throughout the United States were analyzed with particular focus on the comparison of the response to survey questions and mathematical correlations of certain survey responses. The data are presented for partnered versus non-partnered projects and compared to a summary of all project data received. Of the sixty-one projects for which reports were received, thirty-four were formally partnered. This results in a ratio of 1.3 partnered projects to each non-partnered project.

Table II is a matrix of the participation of the key-players in the partnering process. Since the primary contracting parties are the ROICC and the Prime Contractor, it would be expected that 100 percent participation would be evident here. It is interesting to note the participation of sub-subcontractors, since they would be invited at the discretion of the prime subcontractors. It might be expected that this level of participation would be quite low on very complex construction projects where there might be many subcontractors who decide to further subcontract portions of their work. An example of a sub-subcontractor might be a painting contractor who was hired by a mechanical subcontractor for a large fueling station. In spite of the complexity of the project, key player participation in partnering is essential to its success. At the minimum, on the

contractors side of the contract, there should be a high level of participation by subcontractors.

Table II. Pre-Construction Partnering Session Participation.

Type of Participant	%	N*	Type of Participant	%	N*
Navy Personnel			Contractor Personnel		
ROICC:	100%	34	Prime Contractor:	100%	34
Navy Project Manager:	91%	31	Prime Subcontractors:	82%	28
Navy Design Manager:	85%	29	Sub-subcontractors:	32%	11
Base/Facility Personnel			Independent Parties		
Customer:	91%	31	Architect/Engineer Firm:	91%	31

* N = Number of Projects

The participation of the Architect/Engineer design firm level might be indicative of whether the design was contracted to a design firm or accomplished "in-house". If it was designed by a government architect/engineer then the participation by the Navy design manager should have a corresponding level of participation; however, the design manager is usually located at the geographic headquarters for the contracting agency (EFD/EFA, e.g.: Silverdale, Washington in the northwest; Charleston, South Carolina for the south; etc.) and may not be able to physically attend all partnering sessions for construction contracts under their control. This also applies to the Navy project manager, but since they control the allocation of funds for change orders and modifications the level of participation indicated here does show an interest in the success of the project by those at

the EFD/EFA. Overall the level of participation in the invitation to partner NAVFAC construction projects seems to show an interest by all parties to the contract to avoid the adversarial confrontations that have become common in today's contracting environment.

The role of the facilitator in the initial partnering session is to help the contracting parties realize that their individual goals for the completion of the project are compatible. For this reason, many agencies hire professional facilitators who specialize in partnering on construction projects. In this study ninety-four percent of the partnered construction projects began with a workshop conducted by an outside facilitator at an average cost of \$3,909, each to the Navy and contractor, based on information provided from twenty-three projects (information on these costs were not provided for eight of the partnered projects). The median cost was \$3,800 with a range of \$1,200 to \$7,591. Others who hired professional facilitators did not have the cost information available to them. Those that chose not to hire a professional facilitator might have conducted the partnering session with a facilitator from the EFD/EFA. According to EFA Northwest (Anderson, 1993), facilitating the initial partnering session may eventually be done by facilitators from the EFD/EFA on the majority of projects when there are enough Navy project managers and design managers who have been trained as facilitators. This would reduce the initial cost of the partnering session and should provide the same results.

The goal of a partnering session is typically that the contracting parties should develop a better understanding of each other's role and responsibilities. The respondents

were asked the following question: In your opinion, what was the most significant realization that was experienced due to the initial Partnering session? The compilation of all opinions expressed to this survey question are in Appendix B. Most of the comments of the respondents were consistent with the literature, in that most felt that partnering had a positive impact on the construction effort. Table III shows a summary of the significant observations about the initial partnering session. The results shown do not sum to 100 percent due to some respondents mentioning certain observations more than once. The number of observations are also summarized.

Table III. Perceived Outcome of Initial Partnering Session.

Observation	%	Number of Respondents
Identified Problems	37%	11
Improved Communications	33%	10
Developed a Sense of Teamwork	33%	10
Getting to Know Each Other	30%	9
Established Common Goals	23%	7
Founded Mutual Trust & Honesty	10%	3
No Unique Observations	17%	5

Respondents who stated that the partnering session helped to identify problems included the ROICC providing information on the bureaucracy that it must overcome in its administration of the contract and difficulties in reaching set goals. Contractors mentioned

assumptions made in their bids and their frustration with the amount and type of paperwork required to be in the contracting business.

Improving communications and developing teamwork were leading observations. Both observations are consistent with the partnering literature. Respondents felt that open communications would help to alleviate the feelings of uncertainty when inquiries are made of either contracting party, for example, one respondent stated that the contractor was made aware of government restrictions in the managing of the contract which helped to build mutual cooperation. Respondents also felt that the partnering team that was built was essential to success. One respondent mentioned the fact that the contractor helped to identify areas of the contract that could be deductively changed due to the government's admission of a tight budget for the contract.

Getting to know each other and the setting of goals were also leading observations made by the respondents. Since the Federal Acquisition Regulations forbid many of the traditional business practices that are carried out in private contracting it is significant that the respondents felt strongly about getting to know each other as people rather than perpetuating the adversarial "us versus them" relationship. While most respondents described goal setting as a significant component of the partnering process, two respondents gave information on the specific goals which they set, namely those associated with worker safety and timely performance. The other observations of partnering were stated in general terms with no specific explanations being provided.

The remainder of the survey questions sought information from all projects whether they were partnered or non-partnered. Since all projects that are contracted out must deal with some common issues on a day to day basis all of the items surveyed were compared: partnered versus non-partnered and compiled to represent a summary of all respondents.

Figure 1. shows the current work in place (WIP) for all projects reported in the survey. Partnered projects ranged from three percent to 100 percent complete with an average WIP of 63.7 percent and median value of 77.5 percent. Reported non-partnered projects ranged from ten percent complete through 100 percent. The average WIP for non-partnered projects was 80.6 percent with a median WIP of ninety-eight percent. The range for all projects was three percent through 100 percent with an average WIP of 71.2 percent and a median value of eighty-five percent.

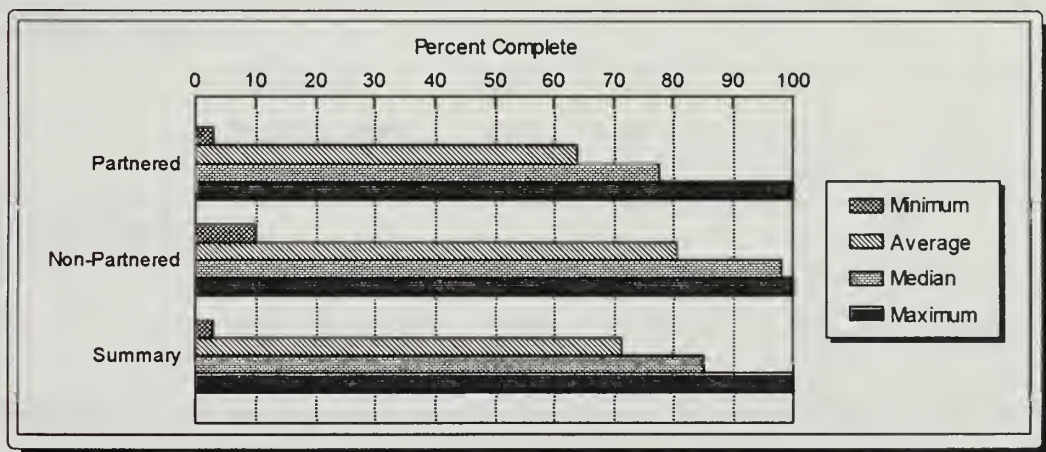


Figure 1. Comparison of Work In Place for Surveyed Projects.

Other project status information was sought in order to normalize the comparison of partnered and non-partnered projects. It was assumed that contracted projects would grow in value over the course of the contract duration as a natural phenomenon of the contracting process. As determined from the literature, partnering cannot guarantee that there will be fewer change orders (Anderson, 1992). It is a false hope to think that partnering will reduce the growth of the value of a contract. Table IV gives a summary of the project award values, current values and growth through the current work in place.

Table IV. Project Size and Growth for Partnered and Non-Partnered Projects

Contract Price Data	Type of Project	Contract Amount (millions)				
		Average	Median	Minimum	Maximum	N
Original Amount	Partnered	\$12.9	\$6.8	\$0.6	\$154.0	34
	Non-Partnered	\$3.9	\$2.2	\$0.07	\$21.1	27
	All Contracts	\$8.9	\$4.6	\$0.07	\$154.0	61
Revised Amount	Partnered	\$13.7	\$6.9	\$0.7	\$154.0	34
	Non-Partnered	\$4.3	\$2.3	\$0.07	\$21.5	27
	All Contracts	\$9.6	\$5.0	\$0.07	\$154.0	61
Total Growth	Partnered	6.2%	3.4%	-2.0%	31.1%	34
	Non-Partnered	8.9%	7.5%	-2.9%	33.1%	27
	All Contracts	7.2%	5.4%	-2.9%	33.1%	61

It is apparent from the survey data that the partnered projects did not grow in value as much as non-partnered projects and were less than the average and median growth for all projects reported. A comparison of the minimums and maximums for the data shows that similar extremes have been reported.

The percentage of work in place is directly related to the accuracy of the data, similarly, the size of a project may influence different factors as they may relate to the complexity of the construction project. Focusing the analysis on the following criteria:

- projects greater than seventy-five percent complete,
- projects greater than one million dollars in value and,
- projects which are greater than seventy-five percent complete and greater than one million dollars in value,

yield similar growth trends. Table V summarizes the growth data.

Table V. Comparison of Project Growth Data Based on Percent Complete and Size.

Contracts > 75 percent Complete					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	9.2%	7.9%	0.6%	31.1%	18
Non-Partnered	8.9%	7.8%	-2.9%	33.1%	20
All Contracts	9.0%	7.8%	-2.9%	33.1%	38
Contracts > \$1 Million					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	6.2%	2.4%	-2.0%	31.1%	33
Non-Partnered	8.4%	7.5%	0%	33.1%	20
All Contracts	6.9%	5.1%	-2.0%	33.1%	53
Contracts > 75 percent & >\$1 Million					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	9.2%	7.9%	0.6%	31.1%	18
Non-Partnered	7.7%	7.5%	0%	33.1%	16
All Contracts	8.5%	7.5%	0%	33.1%	34

Note that when the project data is focused to only include those projects that are greater than seventy-five percent complete then the average and median growth values for partnered and non-partnered projects are about equal. Projects greater than one million dollars in value show the largest difference in mean values of growth for partnered versus non-partnered contracts with partnered projects showing nearly two percentage points less average growth and nearly four percent less median growth. Further focusing the data, to include only those contracts which are greater than one million dollars in value and greater

than seventy-five percent complete, shows that partnered projects have a greater overall growth.

The total number of contractor requests for information or clarification (RFI) is an indication of the complexity of the design. The more RFIs on a particular job, generally indicates that the contractors have to make greater assumptions in their bids; therefore, a greater risk in performance. Table VI shows the numbers of RFIs reported for this study.

Table VI. Total Numbers of RFIs on Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	192.7	98	2	1,200	33
Non-Partnered	55.9	17	1	335	27
All Contracts	131.1	55	1	1,200	60

Note that table VI shows that partnered projects have a greater incidence of RFIs than non-partnered projects and are greater in number than that of the total population, this may indicate that NAVFAC has chosen to partner its most complex construction projects. If the numbers of RFIs are normalized against the project award amount, as shown in Table VII, the study still indicates a greater incidence of RFIs per million dollars of contract value for partnered projects; however, the difference between partnered and non-partnered projects is not significant. Table VIII shows the number of RFIs per million dollars normalized with the current work in place value of the contract.

Table VII. Number of RFIs per \$1,000,000 of Contract Award for Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	17.6	13.5	2	71	33
Non-Partnered	15.8	10.7	1	60	27
All Contracts	17	11.9	1	71	60

Table VIII. Number of RFIs per \$1,000,000 of Work In Place for Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	16	12.9	2	66	33
Non-Partnered	14.2	10.5	1	57	27
All Contracts	15	11.9	1	66	60

Comparing the results shown in tables VII and VIII, it is interesting that the average drops by 1.6 RFIs per million dollars for both partnered and non-partnered projects from contract award through the course of the contract; however, there is little change in the median number of RFIs per million dollars for non-partnered projects while the partnered projects show a 0.6 decline in RFIs per million dollars over the course of the contract. The results still show a greater number of RFIs per million dollars on partnered construction projects.

Similarly, focusing the data on percentage complete and size, as shown in table IX, also shows a greater incidence of RFIs per million dollars of contract value on partnered projects. The data summarized in tables VII, VIII, and IX may be an indication of contractors greater willingness to communicate their concerns with the owner on the

partnered jobs. It has also been suggested that contractors are using RFIs to communicate ideas and suggestions for improvement of the construction effort; this might explain the higher incidence of RFIs on the partnered contracts versus the non-partnered contracts.

Table IX. Comparison of RFIs/\$1M Based on Percent Complete and Project Size.

Contracts > 75 percent Complete					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	21.1	13.7	3.2	66.4	18
Non-Partnered	16.2	12.1	1.2	56.8	20
All Contracts	18.5	13.4	1.2	66.4	38
Contracts > \$1 Million					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	16.4	13.1	1.6	66.4	33
Non-Partnered	14.7	7.8	1	56.8	20
All Contracts	16	12.2	1	66.4	53
Contracts > 75 percent & >\$1 Million					
Type of Contract	Average	Median	Minimum	Maximum	N
Partnered	21.2	13.7	3	66.4	18
Non-Partnered	17	11	1	56.8	16
All Contracts	19.2	13.4	1	66.4	34

Value Engineering

Value engineering modifications to contracts are reported to be a source of increased profits for the contractor and savings for the owner. The literature indicates that partnered contracts have a great attraction for value engineering change proposals (VECP) due to the increased team effort on the part of the owners and contractors. Table X shows the numbers of VECPs proposed for each type of contract. Since there are very few VECP data, a comparison based on percent complete and project size did not show a significant difference in the data.

Table X. Numbers of VECPs Proposed for Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	0.6	0	0	7	34
Non-Partnered	0.3	0	0	3	27
All Contracts	0.5	0	0	7	61

Though there are few projects with proposed VECPs, partnered projects have a higher incidence of VECPs per project as compared to non-partnered projects. The low overall incidence may be attributable to past adversarial contract relationships that did not foster a climate for the effort to produce a VECP. Table X does show that partnering may be fostering an increase in the numbers of VECPs proposed. Table XI shows a comparison of the number of accepted VECPs for partnered and non-partnered projects.

Table XI. Numbers of VECs Accepted on Partnered and Non-Partnered Projects.

Type of Project	Number of Projects	Number of VECs	Number of Accepted VECs	Average Accepted VEC Dollar Value	N
Partnered	12	22	10	\$174,339	34
Non-Partnered	5	7	7	\$22,955	26

Note that table XI shows a greater number of VECs proposed on partnered projects; however, the acceptance rate is lower on partnered projects. The fact that twelve out of thirty-four partnered projects had proposed VECs versus five out of twenty-seven non-partnered projects with VECs indicates that there might be an increased interest in value engineering. The respondents description, classified by partnered and non-partnered, of the most significant VEC accepted are in appendix C. An examination of the VECs that were accepted, both partnered and non-partnered, indicate that the resulting VEC was probably planned with the bid. All but one of the VEC descriptions for non-partnered projects were the substitution of one type of material for another. The short description of the one non-partnered VEC that did not substitute one item for another indicates that it might not even meet the conditions of the value engineering provisions of the Federal Acquisition Regulations (FAR 52.248-03). The partnered VECs were more technically complex than the non-partnered VECs, an indication that serious engineering thought processes were employed. These VECs would be a larger gamble if planned as part of the bid strategy to get the job. It is possible

that partnering is fostering a more comfortable environment for the monetary risk involved in the preparation of value engineering. Figure 2 shows a comparison of value engineering cost savings for partnered and non-partnered contracts.

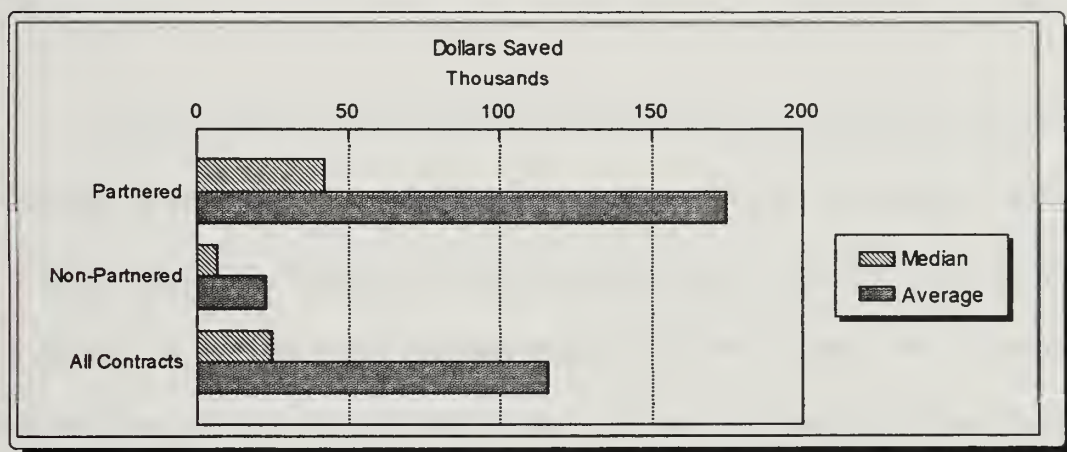


Figure 2. Contract Savings Due to Value Engineering.

The minimum VECP on a partnered project is \$3,100 and \$1,000 on a non-partnered project. The maximum VECPs reported were \$1.1 million on a partnered project and \$60 thousand on a non-partnered project. It is apparent from figure 2 that partnered projects produce significantly greater savings than non-partnered projects.

When asked about the reasons for rejection of a VECP seventy-one percent (five) of the respondents indicated that the VECP did not meet specified design criteria. The other twenty-nine percent (two) of VECP rejections were due to internal government disagreements about the merits of the VECP. There were no non-partnered responses to

the survey about the reasons for rejecting a VECP. Appendix C shows the compilation of the VECP rejection responses.

Changes

Another indicator of the efficiency of the contract administration is the backlog of pending changes or unilateral modifications for extras that, for one reason or another have not been negotiated. Backlogs of pending changes can be a source of anxiety and frustration for both the owner and the contractor and there is usually shared responsibility for the cause of the backlog. Table XII shows the reported backlogs of pending changes.

Table XII. Backlog of Pending Changes on Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	6.1	4	0	34	31
Non-Partnered	2.1	2	0	9	20
All Contracts	4.5	3	0	34	51

Though it seems that partnered projects have a larger backlog of pending changes, the averages and median values of pending changes do not indicate that there are excessive backlogs. A comparison of average backlogs of pending changes over the average work in place is shown in table XIII.

Table XIII. Comparison of Pending Change Backlogs at Varying Stages of Project Completion.

Type of Project	Current Work In Place			
	0-25% (N)	26-50% (N)	51-75% (N)	76-99% (N)
Partnered	10.8 (8)	3.1 (7)	5.0 (2)	5.1 (14)
Non-Partnered	2.0 (1)	1.8 (4)	4.3 (3)	1.7 (11)
All Contracts	9.8 (9)	2.5 (11)	4.6 (5)	3.6 (25)

Note that the largest backlog occurs at the beginning of partnered projects and toward seventy-five percent complete on non-partnered projects. With the exception of the one large backlog, both types of projects have consistent sizes of backlog at other stages of project completion. However, a discussion of the backlog of pending changes would not be complete without noting the reasons for the backlogs. Table XIV shows the backlogs due to unilateral modifications, changes awaiting contractor proposal, changes awaiting government funding, and other reasons. Note that the figures in the tables only reflect data from contracts which reported a backlog.

Table XIV. Nature of Pending Changes Backlog per Project.

Reason for Backlog	Partnered		Non-Partnered	
	Average	Median	Average	Median
Unilaterally issued Modifications	2.3	1	0.6	0
Awaiting Contractor Proposal	2.2	0	0.9	0.5
Await Government Funds	1.4	0	0.5	0
Other Reasons	1.4	0	0.6	0

Unilateral contract modifications come about for generally two reasons: (1) there is an urgent need to perform some extra work due to differing site conditions and a modification is processed immediately so as to not interrupt the contractor's progress with the intention of negotiating at a later time to definitize the action, or (2) a unilateral modification may be issued due to both contracting parties coming to an impasse in the negotiating and unable to come to bilateral agreement on the terms of the modification. In either case the fact that a modification is written, at least shows an effort to make sure that the contractor is given contractual consideration for the extra work rather than leaving the risk on the contractor to have to decide whether to unilaterally perform the extra work and risk not being paid for it.

Table XIV shows that partnered projects have a greater average incidence of unilateral actions; however, noting the median value, which deletes the extreme of twenty-two unilateral modifications on one contract, it seems that partnered contracts have essentially the same number of unilateral actions as non-partnered projects.

The results of table XIV also shows that contractors are generally submitting proposals for modifications in a timely fashion. The results indicate that partnered or not, contractors are cognizant of the time required to process a modification and choosing to not be the reason for any delay in that process. However, contractors do seem to be more timely with proposals on partnered projects compared to non-partnered projects when the extremes are eliminated and the medians are examined.

Backlogs of pending changes due to awaiting government funding do not seem to show any significant difference between partnered and non-partnered projects, though the average for partnered projects is greater than non-partnered. As in the discussion of RFIs, partnered projects may be the more complex and correspondingly, the modifications may be more complex and costly; therefore, greater time may be required to secure the extra funding from the EFD/EFA or customer.

When asking for "other" reasons for the backlog of pending changes, respondents indicated that "other" meant the preparation of either pre-negotiation or post-negotiation memoranda. This is the administrative requirement that sets the government's negotiating objectives or justifies the negotiated amount agreed to, respectively. As with the other reasons for the backlog there is a higher average on partnered projects as opposed to non-partnered projects; however, it does not seem to be a significant difference, when the median is not significantly different in any of the cases.

Some ROICC offices have indicated that the larger backlogs in partnered projects is no surprise due to the partnering process. Contractors feel more comfortable about suggesting improved methods of construction or even deletions of work which result in deductive modifications, all of which result in the assignment of a pending change to the backlog.

Claims

When contractors perform work that is required in order to make a complete and usable facility that may have been left out of the original design, they usually submit a request for equitable adjustment (REA) in order to be compensated for the additional work. This work may have been performed at the direction of an owner's representative in the field or performed in the interest of keeping the schedule. REAs are separate from pending changes due to the fact that an REA may be unexpected on the owner's part. This study has found that fifty-seven percent of partnered projects have REAs submitted while thirty-six percent of non-partnered projects have REAs. If the owner determines that an REA is justified then it is negotiated and a bilateral modification is processed. If it is determined that the REA has no merit then the contractor will usually resort to a claim. Table XV shows the incidence of claims in the surveyed projects.

Table XV. Average Number of Claims on Partnered and Non-Partnered Projects.

Type of Project	Average	Median	Minimum	Maximum	Number of Respondents
Partnered	0.2	0	0	1	24
Non-Partnered	0.3	0	0	2	19
All Contracts	0.2	0	0	2	43

Since a primary motivation that started the partnering phenomenon was the reduction in litigation due to claims and the escalation of the disputes process it would be expected that partnered projects had less claims than non-partnered projects. Though the average incidence of claims is less in partnered projects than that of non-partnered projects the median number of claims is the same whether a project is partnered or not. Table XV shows that, in this survey, there were a maximum of two claims reported on all of the contracts and the two were on a non-partnered project in excess of fifteen million dollars in value. Table XVI shows the numbers of projects with claims reported for partnered and non-partnered projects.

Table XVI. Summary of Partnered and Non-Partnered Projects Reporting Claims.

Type of Project	Number of Respondents		N
	Projects Without Claims	Projects With Claims	
Partnered	24	5	34
Non-Partnered	19	5	27
All Contracts	43	10	61

The results of table XVI show that NAVFAC construction projects are being constructed with few numbers of claims, this explains the low averages and zero median values in table XV. Note that five partnered projects and three non-partnered projects did not have claims data included in the respondent's survey. The resolution of the claims that do come up should show how intent the parties are in resolving disputes at lower levels.

The first step in resolving a claim is made by the Contracting Officer who determines the merits of a claim and either negotiates a bilateral modification or denies the claim. If the Contracting Officer does not find entitlement then the contractor might decide to appeal to the Armed Services Board of Contract Appeals (ASBCA) or to the courts. If the Contracting Officer does not issue a decision the claim may be referred to the EFD/EFA disputes resolution board (DRB). The DRB will listen to both sides of the dispute and issue a decision. If the DRB finds entitlement, a bilateral contract modification is processed and the claim is settled, if not then the contractor will usually appeal to the ASBCA or courts. In either case, the government usually initiates the use of the Contracting Officer's decision or the DRB. Table XVII shows the escalation of claims from the data in this study.

Table XVII. Resolution of Claims on Partnered and Non-Partnered Projects.

Type of Resolution	Partnered		Non-Partnered	
	Average	Median	Average	Median
Contracting Officer's Final Decision	1	1	0.5	0.5
Disputes Resolution Board	0	0	0.5	0
Armed Services Board of Contract Appeals	0	0	0.3	0

Table XVII shows that partnered projects seem to have more claims settled by Contracting Officer's final decision than non-partnered contracts. DRB settlement of claims is used more often on non-partnered projects. The point to make here is that claims are being settled without resorting to litigation; therefore, saving the costs associated with that type of settlement.

Though table XVII shows that claims are, on the average, settled at lower levels, it also shows that no partnered projects have had to resort to litigation in order to settle their disputes. Table XVII does indicate, however, that the majority of NAVFAC projects are not going to court, whether partnered or not-partnered. A summary of the numbers of claims settled by each of the methods shown in table XVII are presented in table XVIII.

Table XVIII. Summary of Claim Resolution for Partnered and Non-Partnered Projects with Claims.

Type of Project	Total Number of Projects/Total Number of Claims	Contracting Officer's Final Decision	Disputes Resolution Board	Armed Services Board of Contract Appeals
Partnered	5/5	5/5	0/0	0/0
Non-Partnered	5/6	3/3	1/2	1/1
All Contracts	10/11	8/8	1/2	1/1

Note that table XVIII shows that, though the numbers of claims reported are nearly identical the methods of settlement vary. All partnered claims were settled by the

Contracting Officer, which tends to support the open communications premise of partnering.

Safety

Much of the literature has claimed that partnering fosters a safer project for the construction workers. When asked whether there were any safety mishaps on the project, thirty-six percent of the partnered projects noted that safety mishaps had occurred on the project, while twenty-seven percent of the non-partnered projects noted a safety mishap.

Table XIX shows the incidence of lost time injuries for NAVFAC construction projects. The data has been normalized and reported as injuries per 100 million dollars of construction effort. Note that the average incidence of lost time injuries accidents is higher in non-partnered projects; however, the median of the data is zero for NAVFAC construction projects whether the project is partnered or not. Except for the higher average there does not seem to be a correlation between partnering and a safer work site. The reasons for the mishaps and lost time accidents are summarized in figure 3.

Table XIX. Injuries Statistics on Construction Projects.

Type of Project	Average Rate per \$100 million of Construction
Partnered	3.2
Non-Partnered	3.9
All Contracts	3.4

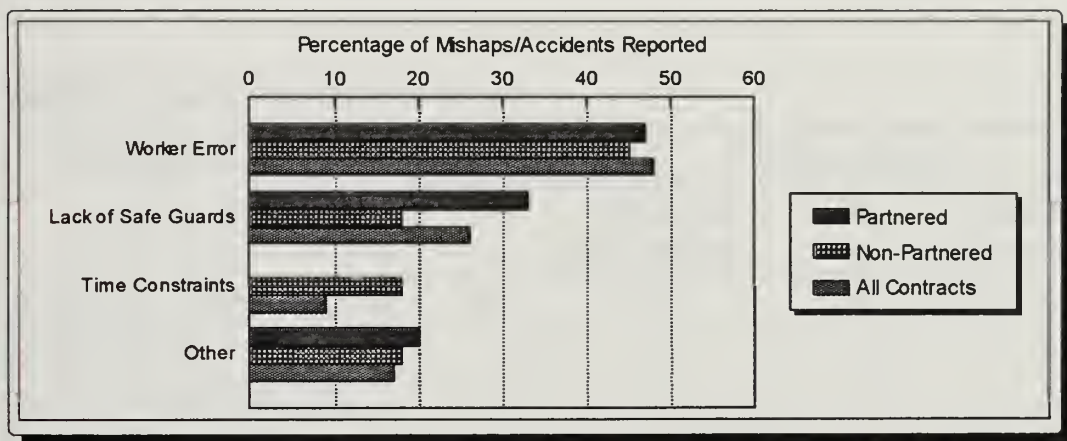
**Figure 3. Distribution of Reported Mishaps and Accidents.**

Figure 3 shows that the distribution of safety mishaps and accidents is fairly consistent for partnered and non-partnered projects; however, it is interesting to note that there was not a single incidence of a mishap or accident attributable to time constraints on partnered projects. The results here do not support the idea that partnering a construction contract will make the project safer.

For those respondents who reported mishaps or accidents the survey inquired about the manner in which the problem that resulted in the accident was resolved. Specifically, information was sought on the manner in which the contractor and ROICC, as partners, worked to resolve the safety issues. The compilation of the answers are shown in Appendix D. Table XV shows a summary of the manner in which safety problems were resolved on partnered and non-partnered projects.

Table XX. Safety Problem Resolution.

Remediation Action of Safety Problem	Partnered		Non-Partnered	
	%	Number of Respondents	%	Number of Respondents
Reemphasize Safety Meetings	36	5	25	2
Safety Training	36	5	0	0
Review/Modify Safety Plan	14	2	38	3
Job Shut-Down	14	2	25	2
Nothing Done	29	4	13	1

Table XX indicates that safety problems on partnered projects are more likely to be handled on the job site with additional interaction with the workers; however, safety problem resolution on non-partnered projects is at the management level with reviews of the safety plan. These results seem to correspond with increased communication effort on partnered projects.

Time

Though the dollar values, claims and numbers of RFIs are indicators of the contract performance, an effectiveness measure of the administration of the contract is the time required to respond to the contractor's RFIs, submittals, requests for variance or substitution, the time to come to agreement on contract modifications, the time to review VECs, and the time to review contractors' requests for equitable adjustment (REA). Unreasonable delay in answering these items may cause monetary impacts that are difficult to identify and/or quantify for the contractor. Figure 4. shows a graphical representation of the differences in median response times for partnered projects, non-partnered projects and the project population.

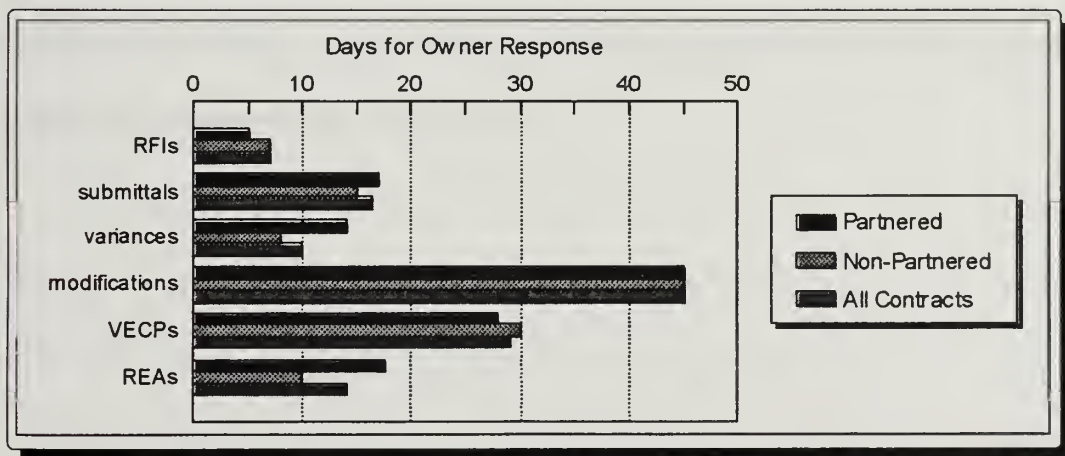


Figure 4. Response Times for Contract Items.

The data does not show that there is a significant difference in the time required to answer contractor inquiries of the Navy; however, partnered projects do seem to have shorter response times to RFIs, in spite of the greater numbers of RFIs as discussed earlier. Variance requests are significantly more quickly handled by the Navy on non-partnered jobs than on partnered jobs, as are contractor REAs. It is interesting to note the fact that a contract is partnered has no effect on the time to modify a contract; however, value engineering modifications are more quickly processed under a partnered job when compared to non-partnered projects or the contract population.

Since the data represented in figure 4 is a summary of all contract data collected, it may be appropriate to examine median response times for the projects which are greater than seventy-five percent complete. This examination should take into account any estimates that may have been given for response times in projects that are in the early stages of work in place. Figure 5 shows the median response times for the contract data greater than seventy-five percent complete.

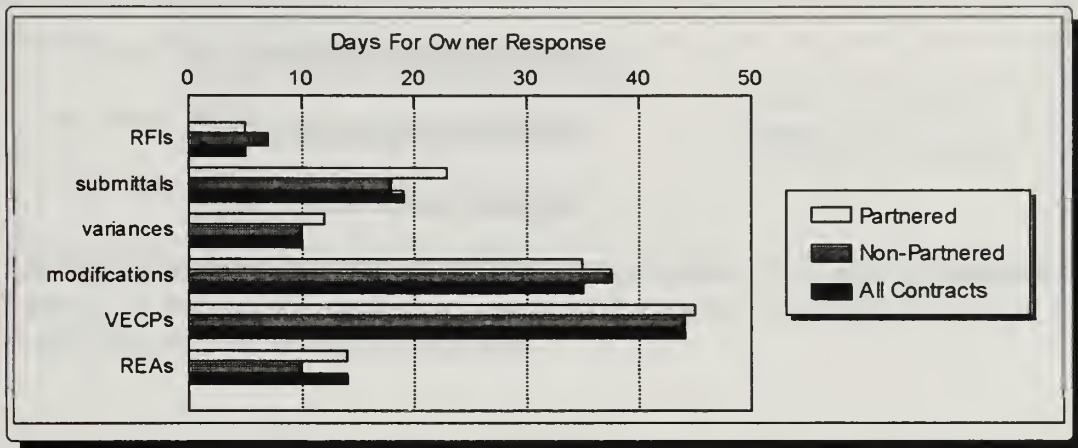


Figure 5. Response Time Data for Contracts Greater than Seventy-Five Percent Complete.

Note that figure 5 shows similar results to figure 4; however, when the data is focused on projects which are greater than seventy-five percent complete, the variance response time becomes nearly equal between partnered and non-partnered projects. Modifications seem to be processed more quickly under partnered projects in figure 5, which is another departure from figure 4, which showed identical times.

Just as it is important to examine the time required for owner responses to contractor inquiries it is important to examine the contractor's responsibility to perform in a timely manner. When the punchlist is generated at substantial completion it is with great anticipation that an owner looks forward to the completion of the punchlist and receipt of the contractor's final release and final payment is made. Figure 6 shows the contractor response times for the completion of the punchlist and receipt of final release.

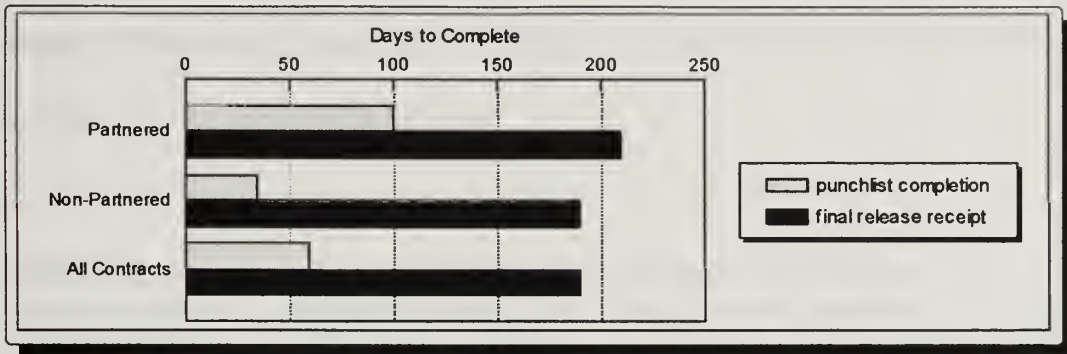


Figure 6. Contractor Completion Times for Punchlist and Final Release for Partnered and Non-Partnered Projects.

Note that figure 6 shows that punchlists take longer to finish on partnered projects as compared to non-partnered projects. Punchlist time represents data from six partnered projects and twelve non-partnered projects. Receipt of the contractor's final release also takes a greater period of time on partnered projects as compared to non-partnered projects. The final release data represents data obtained from two partnered projects and six non-partnered projects. There does not seem to be enough data to suggest that the results of figure 6 are representative of the times to finalize construction projects under partnering or non-partnering types of contracts.

Final Completion

Though the majority of contracts reported were above seventy percent complete, few respondents had final completion data to provide. Intuitively, punchlist size is directly

related to the size and complexity of the project. Table XXI shows the sizes of the punchlists for the contracts in this study.

Table XXI. Number of Punchlist Items at Substantial Completion.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	503.3	185	50	2,200	6
Non-Partnered	110.8	52	4	600	13
All Contracts	234.8	86	4	2,200	19

As stated earlier, partnered projects tend to be more complex and larger in size, this may explain the larger punchlists. Table XXII shows the punchlists normalized for the size of the projects. Normalizing the punchlist per million dollars of contract value shows that partnered projects tend to have, on average, smaller overall punchlists at substantial completion; however, the median value of punchlist items per million dollars shows that non-partnered projects have fewer punchlist items. The small difference in the average and median values are not significant for partnered and non-partnered projects.

Table XXII. Number of Punchlist Items per Million Dollars of Construction.

Type of Project	Average	Median	Minimum	Maximum	N
Partnered	25.2	15.4	4	56	6
Non-Partnered	26.7	14	1	120	13
All Contracts	26.2	14	1	120	19

Perceptions of Partnering

The final questions on the survey asked respondents to comment on their perceptions of the project in regard to partnering. They were asked how they felt the specific project performed and whether they felt their future projects would be administered differently due to their partnering experience. Appendix E is a compilation of all the responses to these final questions. The future use of partnering lies in the evaluation of whether partnering is an effective tool in contract administration. Table XXIII is a summary of respondents assessments of the effectiveness of partnering.

Table XXIII. Perceptions of Partnering Effectiveness.

Assessment of Partnering	%	Number of Respondents
Partnering Effective	64	24*
Partnering Non-Effective	18	7
Indifferent	18	7**

* Four responses were from non-partnered projects

** One response was from a non-partnered project

As shown in table XXIII partnering is generally the preferred method of contract administration in NAVFAC. Note that positive responses were also received from non-partnered projects, in which the ROICC used partnering principles experienced from prior projects and one of the indifferent responses was from a non-partnered project where

the respondent expressed that partnering is not required as long as there is open communications between the contracting parties. Respondents from partnered projects felt that partnering made the contract progress more smoothly. Examples of positive partnering responses include: "...we are able to work together..." or, "...Excellent concept..." and, "...team work really helped this job...". Examples of negative partnering responses include: "...felt like lip-service..." or, "...partnering has little impact..." and, "...contractor only paid lip-service...". Indifferent responses include: "...government is not ready for partnering..." or, "...with or without partnering, this job would have ended the same way." and, "Partnering is not required...". Some respondents commented on their expectation that partnering would result in fewer change orders, while others indicated that partnering is only 'right' for some contracts with some contractors.

When asked if the partnering concept would aid in the administration of other contracts, respondents were generally favorable. Table XXIV shows a summary of how respondents answered whether the partnering experience would change their method of contract administration on future contracts. The results indicate that NAVFAC contract administrators are in the process of change. Contractors are being viewed as a team player in the construction of a facility rather than a temporary obstacle to the same end.

Table XXIV. Change to Partnering Concept Utilization on All Projects.

Anticipated Changes in Approach to Contract Administration on Future Projects	%	Number of Respondents
Changes will Be Made	72	26
No Changes are Anticipated	28	10

Note that support of the partnering concept is evident in table XXIV.

Interestingly, the respondents who stated that they planned no change in how future contracts are administered, qualified that statement by indicating that they were already administering contracts in a fashion similar to the ideals of partnering. This is further evidence that partnering is the preferred method of construction acquisition and should help move toward the end of the era of dispute resolution by defaulting to the court system.

Statistical Analysis

All of the results that were obtained from the survey were subjected to analysis to determine if there was a statistically significant difference between the performance measures obtained on partnered and non-partnered projects. The samples were assumed to be representations of a normally distributed population. For the performance measures, the averages, sample sizes and standard deviations were subjected to the Student T-test to

evaluate the significance of the results. The T-test is a "means test for two independent samples with population standard deviation unknown and small samples" (Mahoney, 1993). Since there was data for thirty-four partnered projects and twenty-seven non-partnered projects, it was considered appropriate to utilize this test to analyze the data.

In order to determine if the differences of the averages for partnered projects and non-partnered projects obtained from the data (reflected in the tables and figures in the preceding text) are statistically significant, a null hypothesis was assumed that the sample averages were equal. An alternate hypothesis was assumed that the sample averages were not equal. Stating the null hypothesis as assuming the averages are equal and stating the alternate hypothesis as assuming the averages are not equal allows greater control in avoiding the committing of a Type I error (rejecting the null hypothesis when it should not have been). The differences of the averages are considered statistically significant if the null hypothesis is rejected. The test was performed with the critical region assumed to be five percent with ν degrees of freedom (ν equals the partnered sample size plus the non-partnered sample size less two) for a two tail, Type I error, (Walpole, et al. 1985).

The T-test was performed on all data in this study. The results of these tests show that there are no statistically significant differences between the averages of the various performance measures reflected in the tables and figures in the preceding text. The only exception was found in the comparison of the backlog of pending changes for partnered

and non-partnered projects. The difference in the average of 6.1 pending changes on partnered projects compared to 2.1 pending changes on non-partnered projects is statistically significant and the null hypothesis is rejected. The statistical values used in this case are shown in table XXV.

Table XXV. Statistical Values Used to Perform T-Test on the Backlog of Pending Changes for Partnered and Non-Partnered Projects.

Type of Project	Statistics	Statistical Values
Partnered	Sample Size	31
	Average	6.1
	Standard Deviation	7
Non-Partnered	Sample Size	20
	Average	2.1
	Standard Deviation	2
Analysis	Computed T-Statistic	2.48
	Minimum T-Statistic Required to be Statistically Significant at the 0.05 level	2.01

It is interesting to note that the Student T-test found there to be no statistically significant difference between the average savings due to VECs for partnered and non-partnered projects. The probable reason for this is that there is not enough data, at this point in time, to make a reasonable comparison, the standard deviation for partnered VECs (sample size equals twelve) is \$351,843 and the non-partnered VECs (sample size equals five) standard deviation is \$24,665.

CHAPTER V: CONCLUSION AND RECOMMENDATIONS

Conclusion

Partnering is still a new form of contract administration for the U. S. Navy. The past patterns of the "us versus them" mentality are still present in contract administration. Historically, open communication and teamwork principles have been absent in the contracting environment, but the government and the contractors need to rely on each other as equal members in the contract performance in order for partnering to be truly successful. This change requires a major adjustment to be made by both contracting parties.

The conclusion to this study is that the objective results of the survey do not show that partnering has not been significantly better than non-partnering in any of the contracting criteria for which data was obtained. The survey attempted to be as complete as possible by obtaining objective information on several major performance measures. While the objective analysis is inconclusive as to whether partnering is a more or less effective method of contract administration, the subjective responses to the survey are more persuasive.

All subjective results are all but unanimously in favor of partnering. With the many nuances of contract administration in construction, it is indeed difficult to quantify the

effectiveness of a particular approach. As an example, if a contractor were to contact the ROICC concerning a possible encroachment to the jobsite by base personnel, the ROICC then has the responsibility to contact the base and correct the situation. In a partnered contract this situation would be very quickly remedied due to the fact that the base personnel, that the ROICC had to contact, were involved in the partnering and have a personal stake in the contract performance. Conversely, in a non-partnered project the situation would also be corrected; however, the contractor would probably be less understanding if there was a delay in the correction, the base personnel might feel that the contractor is interfering in their mission and ROICC personnel might feel that they are continually caught in the middle of a seemingly bad situation.

The perceptions of contract administrators that partnering is successful may indicate that they feel that their work environment is now more enjoyable; therefore, they may feel that they are more productive. In these times of reductions in the federal government, base closures and environmentally sensitive construction projects, it seems that it is more important than ever for contract administrators to be as efficient and productive as possible. If the people who are partnering with the contractor on the jobsite feel that partnering is the preferred method and if they feel that it saves money and produces the highest quality construction at the lowest cost, then partnering should be the method of contract administration that is utilized.

Recommendations

Since it is inconclusive as to whether partnering actually lowers costs or improves performance, further research may be warranted. Partnering is still relatively new to the Navy and it is possible that old adversarial attitudes might still be present, both in the government and contractors. If these attitudes are to be truly changed then they may need the experience gained from several partnered projects. It is possible that this same study could be performed at some future date and the objective data reveal that partnering is clearly the better choice in contract administration. It is also possible that the attitudes fostered by partnering will be adopted and reflected on non-partnered projects. Thus, the effectiveness of partnering may be real, but no viable means may exist by which to quantify it. Perhaps the performance measures of partnered projects could be compared with performance measures of non-partnered projects completed prior to 1988 when partnering began.

This study attempted to compare averages of performance measures over a sampling of many different types of construction contracts in order to make a determination. Another form of research may take paired observations of performance measures on similar partnered and non-partnered projects to determine if partnering is effective in contract administration. Such projects would ideally be similar in scope, complexity, and value.

Another possibility in further research is in the claims that arise during construction. This study did note that no claims on partnered projects were being appealed to the courts; however, further research into all claims and how they come about and are handled on partnered and non-partnered projects may yield objective data that may describe the extent to which partnered projects result in litigation. If the contracting parties avoid the courts for resolving disputes then both parties will be able to utilize this time more effectively in getting their respective tasks done.

The Navy should continue to endorse partnering in its construction contracting. Involvement of all key personnel is vital and all attitudes that the government and contractor have incompatible goals in the construction effort must be changed. It is possible and realistic to say that the goal of achieving the highest quality facility at the lowest possible price is compatible with performing the work required in contract at the lowest cost and with the highest possible profit margin. The government and the contractor working as "partners" can achieve both goals. The mind-set must be that a "win-win" scenario can be a reality.

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APPENDIX A: SURVEY FORM AND LETTER

20 May 1994

NE 61 Peg Leg Court
Belfair, Washington 98528
(206) 275-0856

Resident Officer In Charge of Construction <ROICC_OFFICE>
<ADDRESS_1ST_LINE>
<ADDRESS_2ND_LINE>
<CITY>, <STATE> <ZIP_CODE>
<TELEPHONE> FAX: <FAX>

Dear <RANK> <LAST_NAME>:

I am currently assigned as a graduate student at the University of Washington, in the Department of Civil Engineering's Construction Engineering and Management Program. As a part of my studies, I am doing research on NAVFAC's recent trend of Partnering in construction contracting.

I am interested in whether this new technique in administering construction contracts is having any impact on the efficiency of contract administration. As you know, contract administration can sometimes be a frustrating or pleasant experience dependent upon many different factors. The question about Partnering is whether it will minimize the frustrating experiences so that we can focus on the real goals of the ROICC: providing construction support to the fleet, on time and within budget.

This research is of interest to the University of Washington and should also be of interest to the Naval Facilities Engineering Command. I would appreciate your cooperation in filling out the attached survey form and return it to me at my home address as noted at the top of this letter. I am looking for information on **Partnered** projects as well as, like value **non-Partnered** projects so please provide at least two sets of information. Feel free to copy the form to suit the number of projects you will be reporting on. **Note: Specific identities of respondents and their projects will be kept strictly confidential. All data will be presented in survey form only.**

I would appreciate a response by 15 June 1994. If you have any questions feel free to call me after 1930 Pacific Time. Thank you for your time and assistance.

Very Respectfully,

SCOTT W. LOWE
LT, CEC, USN

Encl:
Partnering Survey

PARTNERING SURVEY

Engineering Field Division/Activity: _____

ROICC Office and Point of Contact: _____ Phone: _____

Contract Number: _____

Contract Title: _____

Was the Contract Partnered? Yes ☐ No ☐

If so, of the following parties, who was invited to participate in the Partnering process?

(check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> ROICC | <input type="checkbox"/> Navy Project Manager |
| <input type="checkbox"/> Navy Design Manager | <input type="checkbox"/> Navy Customer |
| <input type="checkbox"/> Prime Contractor | <input type="checkbox"/> Prime Subcontractors |
| <input type="checkbox"/> Subsubcontractors | <input type="checkbox"/> Architect/Engineer Design Firm |

Was a professional Facilitator hired to conduct the Partnering sessions?

Yes ☐ No ☐ Facilitator Cost: \$ _____

In your opinion, what was the most significant realization that was experienced due to the initial Partnering session? (please comment on how this realization changed your opinion about the Contractor and how you felt it impacted the Contract execution.) _____

Contract Administration

What is the current Work In Place (WIP)? _____ % complete

What was the Contract Award Price? \$ _____

What is the current value/close out price? \$ _____

What was the average response time for submittals? _____ days

How many Requests For Information (RFI) were received from the Contractor? _____ RFI's

What was the average response time to the RFI's? _____ days

Has the Contractor submitted any requests for variance or substitution of the specifications?

Yes ☐ No ☐

If so, what was the average response time to either reject or approve the variance or substitution? _____ days

Value Engineering

How many Value Engineering Change Proposals (VECP) were submitted by the Contractor? _____

What was the total savings to the Contract due to VECP's? \$ _____

How many VECP's were accepted by the Government? _____

On average, how many days did it take to review, and decide on the VECP? _____ days.

Give a description of the most significant VECP that was incorporated into the contract and the total savings represented before the shared savings. _____

If a VECP was rejected what was the primary reason for rejection? _____

Claims/Change Orders

How many pending changes have yet to be conformed into bilateral modifications? _____ PC's

The reason for the backlog is due to: (give quantities of each)

_____ undefinitized/unilateral modifications

_____ awaiting Contractor Proposal

_____ awaiting Government Funding after successful negotiations

_____ awaiting Government Funding prior to negotiations

_____ Other (give reason) _____

What is the average time to conform a modification from RFP to Contracting Officer's signature? _____ days.

Has the Contractor submitted any Requests for Equitable Adjustment (REA) for accomplishing, Contractor perceived, extra work under this contract? Yes ☐ No ☐

On average, how many days did it take to respond to the REA? _____ days

Did any of the REA's become claims? Yes ☐ No ☐

If yes, of those that became claims:

how many were resolved by the Contracting Officer? _____

how many were resolved by the EFD/EFA Disputes Resolution Board? _____

how many were appealed to the Armed Services Board of Contract Appeals? _____

how many were handled by other means and give a description _____

Safety

Were there any safety mishaps during contract performance? Yes ☐ No ☐

How many lost time accidents were there under this contract? _____

What was the cause of the most serious accident?

- ☐ Worker Error ☐ Lack of appropriate safe guards
☐ Time Constraints ☐ Other (please note) _____

Was anything done, specifically by the ROICC and Contractor to avoid further accidents?

Final Completion

Was there a Punchlist? Yes ☐ No ☐

If yes, how many items was the Punchlist? _____

What is the estimated time to complete the Punchlist? _____ days

For those projects that have been finalized, how many days passed between substantial completion and receipt of the Contractor's Final Release? _____ days

Perceptions Of Partnering

In regard to Partnering, what were your perceptions of this job? _____

In what way(s) did the Partnering experience change your method of contract administration on subsequent contracts, Partnered or not? _____

Thank you very much for your time and assistance. If you would like a copy of my findings, please provide your name and address below: **(Note: Specific identities of respondents and their projects will be kept strictly confidential. All data will be presented in survey form only.)** _____

APPENDIX B: INITIAL PARTNERING SESSION REALIZATIONS

In your opinion, what was the most significant realization that was experienced due to the initial Partnering session? (please comment on how this realization changed your opinion about the Contractor and how you felt it impacted the Contract execution.)

1. "That all members of the Partnering session were a team, working towards a common goal of completing the contract safely and on time."
2. "No unique realizations"
3. "This Contract is still in progress. We were able to learn about the personalities of all members, we were able to establish group goals for the benefit of the project."
4. "How well the group worked together toward common goals"
5. "Team-building, individual personalities and perceptions"
6. "Two days of Team-Building and group problem-solving broke down the typical barriers to communication, honesty, and trust that take months to foster on a non-partnered project."
7. "We had the same goals:
 1. Safe project,
 2. On time,
 3. Within budget/make profit,

4. satisfied customer."
8. "The [contractor] became aware of how complicated the system is in which ROICC/EFA has to work to get things done quickly."
9. "Cooperative nature developed with the EFD Design team. Biggest barrier remains EFD attitudes."
10. "Contractor interpreted spec. sub-bid item on asbestos as cubic feet of waste being removed as opposed to Navy's estimate of quantity based on cubic feet of asbestos insulation in-place."
11. "That Contractor & Gov[ernment] can have common goals."
12. "Gave everybody the opportunity to get to know each other as people."
13. "Socialization, getting to know each other."
14. "It was easy to set goals, but it was most difficult to find the ways to reach them."
15. "I took over contract @ 65% and was not around during initial partnering session."
16. "Contractor started the project in a very hostile attitude. A Partnering session was scheduled to make the contractor more aware of the Government's restrictions in managing the contract. As a result of the meeting, the contractor has been more cooperative in his dealings with the Government."

17. "Viewing the [contractor] as a team member instead of as an adversary. It aided in executing the contract more smoothly in expediting problem solutions."
18. "That contractors are required to deal with a great deal of paperwork & bureaucracy. Unfortunately, most is part of the system."
19. "How delays to responding to the contractor increase hidden costs. I tried to expedite submittals & RFIs."
20. "The team work concept. Using the contractor's resources in addition to the ROICC's to solve problems."
21. "Change would be required if we were to be successful."
22. "Was not present."
23. "Many of the goals that the gov[ernment] and the [contractor] have are actually common goals. Created a feeling of trust."
24. "Both parties openly discussed assumptions in bid and specifications."
25. "The contractor understood that we have no extra [money] in our MCON appropriation for change orders. He was fully on board with us and even helped identify potential offsets (deductive changes) in case contingencies arise."
26. "Team-building - the contractor went from being [an] adversary to an ally."

27. "All parties got to know each other."
28. "I did not have a significant realization which changed my opinion about the contractor because I had never worked with this contractor before and thus hadn't yet formed any opinion to change."
29. "The willingness to openly communicate was explored. Very good team relationships established."
30. "Explanation of government concerns over maintaining existing hospital operations."
31. "All the key players got to meet each other and achieve a general understanding of the project plus identify key issues."

APPENDIX C: VALUE ENGINEERING CHANGES

Give a description of the most significant VECP that was incorporated into the contract and the total savings represented before the shared savings.

Partnered

1. "The use of EB conduit instead of sch[edule] 40. Total savings 7.8K"
2. "Packaged air handling units. Total savings of 125K"
3. "Revised heating from steam to gas fired boiler. Total savings of \$250K"
4. "Use of CMU [concrete masonry units] in lieu of concrete & [use of] PVC pipe in lieu of cast iron [pipe]. Total savings \$25K."
5. "Substituting Push-Joint versus Mechanical Joint pipe for force-main. Total savings of \$95K."
6. "Contractor has proposed pre-cast/pre-stressed concrete for roof in lieu of cast in place. Total savings of \$150K."
7. "Mechanical system - eliminate back-flow preventers on mainlines and place smaller ones on distribution lines. Total savings of \$7K."
8. "The contractor submitted a VECP to totally revise the structural framing of the building from concrete structure to another. Total savings of \$1M."

9. "Change pipe insulation material. Total savings of \$13K."

Non-partnered

1. "Change in sprinkler type and configuration [resulting in] \$14K total savings."
2. "The VECP provided for the elimination of three major roof penetrations by using roof mounted remote coolers. Total savings of \$4K."
3. "Deletion of requirement for reinforced concrete wall. Replaced with sheet pile wall. Total savings of \$55K."
4. "Use of renewed rails in lieu of new rails. Total savings of \$100K."
5. "Did not move valves on steam line - no need to do so. \$1K."

If a VECP was rejected what was the primary reason for rejection?

1. "Contractor proposed a different fan coil for [monetary] savings; however, the government (through A/E) determined that the proposed fan coils would not have the required capacity for desert conditions."
2. "[VECP] did not meet criteria."
3. "Political reasons. The sensitivity of the project with local environmental groups forced the [government] to disapprove, otherwise, acceptable VECPs."
4. "Against the recommendation of the ROICC, [EFD] disapproved the VECP. No meaningful reason was given. (Probably politics.)"
5. "A/E is reviewing, but preliminarily [sic] states that explosive safety and security criteria will be violated with [the VECP]."
6. "A cost savings would be realized but with a reduced operational efficiency."
7. "Design did not meet Navy criteria."

APPENDIX D: SAFETY

Was anything done, specifically by the ROICC and Contractor to avoid further accidents?

Partnered

1. "Work stopped & safety plan modified."
2. "No."
3. "The subcontractor who had the accident, initiated a more intense training program for his personnel."
4. "Safety stand-down/increased emphasis on safety."
5. "Reinforced safety requirements."
6. "Safety procedures stressed to workers."
7. "Asbestos soil encountered after final air clearance in soil bottomed utility trench. Encapsulated soil with concrete/grout floor."
8. "Assured safety meetings and installed appropriate safeguards."

9. "Better inspection of scaffolds."
10. "Additional safety training for employees during tool box safety meetings."
11. "No. It was a freak accident. Overall safety program is excellent."
12. "No. Contract requires a full-time safety engineer on site at all times."
13. "Yes, safety barricades were removed temporarily & a man fell. Barricades were put back up."
14. "Daily attention to detail."

Non-Partnered

1. "Enforced Tool Box safety meetings on all phases of the project."
2. "Safety plan review."
3. "Yes. The ROICC, in conjunction with the contractor, initiated a warning system which, after two safety warnings to an employee, resulted in a days off without pay."
4. "Reviewed safety procedures."
5. "Yes, safety stand-down, job shutdown, revised safety plan, terminated subcontractor."

6. "No, we were already having weekly safety meetings."
7. "At the precon[struction meeting], electrical & manhole safety was discussed between contractor, ROICC, base electrical engineer and base safety representative."
8. "Job was shut down (just painters) [because] they repeatedly refused to wear hard hats."

APPENDIX E: PERCEPTIONS OF PARTNERING

In regard to Partnering, what were your perceptions of this job?

The following represent respondents who feel that partnering is effective.

1. "To date Partnering is working for this Contract, we are able to work together and settle issues at the lowest level."
2. "Excellent concept. Plan to use on all future jobs in excess of \$5M and some selected jobs less than that."
3. "Partnering led to negotiations and modifications for Requests for Equitable Adjustments, which would have been declined under other projects."
4. "Although this job was not 'partnered', we made extreme efforts to work with the contractor in a partnering fashion so as to work through this poorly designed project."
5. "So far it is working great."
6. "Partnering is working, but it doesn't make changes less in quantity or difficulty."
7. "Although Partnering was not a part of this job; there has been good relations & cooperation between the contractor, customer & the gov[ernment]."

8. "It makes the project move because the contractor feels he will be treated fairly. Negotiations tend to be a bit more generous than on a project that is not partnered."
9. "Improved contractor's position regarding change orders and possibly some improvement in overall cooperation with the Government."
10. "Helped expedite solving problems."
11. "I feel partnering kept this contract manageable and moving forward."
12. "The bond between AROICC/CONREP and Prime Super/CQC was strong. The farther away from this relationship, the weaker the partnering effort."
13. "Partnering helped in decision making, particularly with regard to escalation process. Sometimes, however, it lulled the group into a false sense of security regarding communications [and] mod[ifications] entitlement."
14. "So far so good, but we have yet to get into the 'meat' of the project. Contractor is, so far, quite cooperative."
15. "Job went great. [Contractor], A/E, & AROICC developed a team to resolve problems & complete project vice assign blame & file claims."
16. "It has gone well this far, especially submittal/RFI process."
17. "Partnering assisted job progress because it established lines of communication and opened discussion on difficult/sensitive environmental issues of concern."

18. "Partnering is the only way to go on a job this size."
19. "A real team spirit solving literally hundreds of underground obstructions."
20. "Partnering has helped, but not to the extent of other jobs. [Contractor] has replaced the [project manager] & super[intendent] - new guys [that] did not make partnering."
21. "Forces formal dialogue with [contractor] on a monthly basis where all key players are brought together to discuss job performance, quality & key issues."
22. "Should have spent more time partnering with the designers. Problems were with internal elements ..."
23. "It helped alleviate some problems, but also caused problems. [Contractor] felt that partnering gave him the opportunity to receive extra benefits."
24. "Outstanding ROICC/Prime relationship. However several subs did not attend opening session and were not 'on board' with the concept."

The following represent respondents who felt that partnering was ineffective.

1. "In observations of other jobs - the system [partnering] does not appear to work (in my opinion)."

2. "Difficult to tell the difference between this and a non-partnered job: It appeared to the ROICC that the contractor only paid lip service to partnering."
3. "Mostly felt like a catchword/lip-service that meant the Gov[ernment] should relax contract terms."
4. "Not as well as hoped. Actions (or inaction) on the part of another contractor affected this contract's schedule to a great extent."
5. "Both sides talk about partnering but nobody really applies what they talk about."
6. "I don't think partnering works on a Government construction project. The only true common goal for both parties is on time completion. I do feel that partnering prevented any claims, however."
7. "It didn't work (Formal partnering that is). Owner perceived partnering to mean that he could deviate from the contract drawings & specs on anything he wanted to."

The following represent respondents who felt indifferent to partnering.

1. "This was simply the wrong job to partner. The contractor is a known claim artist and almost any job he does results in [a claim]. With or without partnering, this job would have ended the same way."
2. "Partnering has little impact on the job so far."

3. "Job was a difficult project which interfered with operation of Submarine Base."
4. "Partnering is not required if both the parties recognize the need to respond to events in a timely manner and they maintain open communication."
5. "Team work really helped this job during the peak of construction. The team has fallen apart at the end (can't get the punchlist cleared)."
6. "Excellent concept, but the government is not ready for prime time partnering."
7. "Too early to tell the effectiveness of Partnering."

In what way(s) did the Partnering experience change your method of contract administration on subsequent contracts, Partnered or not?

The following are respondents who felt that they anticipate changing their methods of contract administration.

1. "Too early to tell, I would like to think that Partnering would work on all Contracts."
2. "Reduced paperwork greatly. Developed trust that kept the job moving. Contract will be finished early despite numerous underground problems."
3. "More willing to work things through with the contractors. I did not take as an aggressive attitude as before."
4. "Try to increase verbal communication, vice posturing/letter writing (major time sump), affirm to myself that [contractor] & gov[ernment] are supposed to have the 'same' goals."
5. "Involve A/E [and in house] designers more."
6. "Strict constructibility reviews to preclude design and bid errors leading to modifications."
7. "[Minimize] escalation of problems."

8. "Our office has formally partnered other jobs and we use those [principles] to work with the 'non-partnered' contractors. Partnering works when there is communication and rapport, you don't need a 'session' or 'partnering' label to do this."
9. "Try to see things more from the [contractor's] viewpoint."
10. "The job goes better and is more fun when everybody gets along."
11. "Opened up communications."
12. "On our job....Partnering was conducted after award because of the number of conflicts that arose between gov[ernment] and [contractor]. I believe this helped the situation; time will tell."
13. "Shows that a working relationship needs to be established early, to help eliminate problems between the contractor and government."
14. "More teamwork with [contractors]."
15. "I became more pro-active with other contracts, more willing to look at both sides of the issues more closely before making a decision."
16. "Partnering is not easy!! Institutional inertia is for adversarial relationships. The government people must accept a lot of criticism to be partners. This criticism is all in house. It is much easier for contractors."

17. "I was able to convey a greater sense of trust to other contractors and, in turn, they are more willing to 'work with' us when problems arise."
18. "Open communications with the contractor so all work together for the good of the final product."
19. "We have a more detailed approach to potential disputes. We get higher levels in the chain of command involved immediately on both the government side and the contractor's side. Instead of lining up against each other, we meet face to face and let all parties present their case before going to claim."
20. "With some [contractors] all subsequent contracts went very well. Attempts to partner with other [contractors] did not go so well. It seems that without a formal partnering session, (2 days with a facilitator) the team-building is not as strong, and when problems arise the players resort to their old ways."
21. "I tend to communicate more openly with the contractor, avoiding a 'we versus them' mind-set."
32. "Opens up communication and trust. Highlights the value of working together as a team."
23. "Promotes open conversation. Once you see how well a team relationship works, you will never go back to working as adversaries."
24. "For large jobs we have a monthly partnering session where ROICC, ROICC supervisory engineer, project administrator, & [government construction

representative] meet with A/E, contractor project manager, superintendent, contractor quality control [representative], etc. to review job progress. Gets issues out on the table and stops 'finger pointing'. I believe support from A/E is more timely & thorough when [they are] involved at jobsite on monthly basis."

25. "Partnering or not; many ingredients must come together for a good project:

1. Good contractor (not one ready with a lawyer & handful of changes),
2. The mentality to deal in good faith,
3. Get rid of ingrown suspicion [that] the 'bad guy' is always the contractor,
4. Work with mutual respect for all parties,
5. Have competent personnel at all levels."

26. "This project was not formally partnered, however, we maintained a partnering relation throughout. The contractor did, however, submit a claim at the end of the project for the Government's disallowing the contractor's use of a batch plant which was set up for a previous job. We agreed to disagree and will soon have a [contracting officer's] review & final decision at [EFD]."

The following are respondents who anticipate no change in future contract administration.

1. "It did not change my method of contract administration. It did, however, give me a negative perception of partnering."
2. "No change, my policy has always been to reach agreement when possible. We have very few claims in this office."

3. "No change."
4. "It has not really. I have tried on all projects to foster these types of relationships. I think by formalizing the process (by basically going on a pre-performance retreat, and hiring a facilitator) it helps forge a greater commitment from all parties, but especially the contractor's side, that every situation need not be a 'win-lose' and that we actually do have common goals."
5. "No changes on how I do work."
6. "Essentially no change. Office practice has been to build a team vice adversarial relationship."
7. "No change. Partnering is a tool, if not properly utilized by all players (especially the decision making group) [it] will fail."
8. "I negotiate harder on projects that are not partnered because I have less to lose."
9. "None. On this contract, the contractor went through [personnel changes] before [hiring] people he trusted. The last superintendent understood more about administration of [government contracts] & most importantly, had the [contractor's] faith which stopped the micro-management and the near default that was imminent."
10. "The partnering concept did not change my opinion or methodology of contract administration significantly. I felt that the main benefit was from the [minimization] of the escalation process which reduced the number of levels that bogged down at the

project manager level. Through the escalation ladder, both the [contractor] and the [government] understood each other's positions on issues regarding entitlement to equitable adjustments, etc."

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